REMARKS

Claims 1-20 are pending in this Application. Reconsideration and further examination of the subject patent application in light of the present Amendment and Remarks is respectfully requested.

Rejections under 35 U.S.C. §112

Claim 1 stand rejected under 35 U.S.C. §112, second paragraph. In particular, the Office Action asserts that the term "repeating frame" is not clearly supported. In response, the term has been deleted.

Claims 17 and 19 stand rejected under 35 U.S.C. §112, second paragraph. In particular, the Office Action asserts that "the specification . . . does not disclose the 'transmits an audio signal from the microphone mixed with a pilot tone burst; and a CPU that digitally encodes the pilot tone with a frame of data containing a plurality of status indicators of the wireless microphone provided by the CPU" (Office Action of 9/23/08, page 3). In response, the mixing and encoding steps have been reversed and the digital limitation has been deleted. Accordingly, the rejections under 35 U.S.C. §112, second paragraph are now improper and should be withdrawn.

Rejections under 35 U.S.C. §103

Claims 1-5 and 7-12 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Pat. No. 6,954,538 to Shiraishi in view of U.S. Pat. No. 7,349,667 to Magee et al. Applicant

respectfully traverses these rejections.

In response, independent claim 1 has been further limited to "transmitting a tone burst coded with a frame of data, including a header with address information, a payload and a trailer from the transmitter to the receiver and storing said frame of data therein, said payload of said frame of data containing two or more characteristics regarding said transmitter disposed within respective predetermined locations of the frame." A "frame of data" in the context of the claimed invention would be well understood to those of skill in the art to include "a header with address information, a payload and a trailer." For example, Newton's Telecom Dictionary explicitly states that "a frame of data is a logical unit of data which commonly is a fragment of a much larger set of data . . . Each fragment of data is packaged into a frame format, which comprises a header, payload and a trailer . . . included within in the header are control information, (frame number), and address information (e.g., originating and terminating addresses" (Newton's Telecom Dictionary, 15th Ed.). Paragraph [0057] of the specification, in fact, has been amended (as shown above) to conform the specification to the understanding of those of skill in the art.

Claims 1-5 and 7-12 are now clearly differentiated over Shiraishi and MaGee et al. It may be noted first in this regard that Shiraishi operates exactly the opposite as that of the claimed invention. For example, claim 1 is limited to "detecting an audio signal via an acoustic transducer located within the transmitter; transmitting data from the transmitter to the receiver . . . said data including the detected audio signal; "transmitting a tone burst coded with a frame of data, including a header with address information, a payload and a trailer from the transmitter to

the receiver . . . said payload of said frame of data containing two or more characteristics regarding said transmitter disposed within respective predetermined locations of the frame." If the Shiraishi remote control 300 is the transmitter, then the Shiraishi remote control 300 does not transmit "data from the transmitter to the receiver . . . said frame of data containing two or more characteristics regarding said transmitter." This is necessarily the case because the Shiraishi remote control 300 transmits analysis results (characteristics) regarding the receiver 100, not characteristics of the remote control 300.

Moreover, McGee et al. also fails to meet this claim limitation. For example, McGee et al. merely transfers training tones. Nowhere within McGee et al. is there "a frame of data, including a header with address information, a payload and a trailer from the transmitter to the receiver . . . said payload of said frame of data containing two or more characteristics regarding said transmitter disposed within respective predetermined locations of the frame."

Moreover, neither Shiraishi or McGee et al. provide any teaching or suggestion of "a tone burst coded with a frame of data from the transmitter to the receiver . . . said frame of data containing two or more characteristics regarding said transmitter." For any of the above reasons, the combination of Shiraishi and McGee et al. do not teach or suggest each and every claim limitation. Since the combination does not teach or suggest each and every claim limitation, the rejections are improper and should be withdrawn.

Claims 17-20 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Pat. 6,400,935 to Williams in view of U.S. Pat. No. 6,785,513 to Sivaprakasam. Applicants respectfully traverse these rejections.

It may be noted first, in this regard, that the Office Action asserts that "Williams teaches . . . a CPU (52 reads on microprocessor) that digitally encodes the pilot tone with a frame of data containing a plurality of status indicators of the wireless microphone provided by the CPU, said plurality of status indicators disposed within respective predetermined locations of the frame (see fig. 2 and col. 7 line 33 – col. 8 line 67)" (Office Action of 4/2/08, paragraph bridging pages 8-9). However, it may be noted that the Office Action is clearly in error with regard to this statement because Williams does not teach "a frame of data containing a header with address information, and a payload including a plurality of status indicators of the wireless microphone , said plurality of status indicators disposed within respective predetermined locations of the payload of the frame. Instead, Williams explicitly teaches that "data signals are transmitted and received in the audio band" (Williams, col. 10, lines 61-62). Moreover, "The pilot tone is a pure tone having a frequency of 6.5 kHz" (Williams, col. 8, lines 31-32). Under Williams, the pilot tone is used simply to mute and unmute the audio channel. As such, Williams does not teach that which the Office Action says that it does.

Moreover, Sivaprakasam explicitly states that "The preferred signaling scheme in network 200 is OFDM and all control channel signaling is preformed within this framework" (Sivaprakasam, col. 11, lines 62-64). Moreover, "The actual channel estimate is derived from observing the phase and amplitude of the received pilot tone burst by the corresponding receiver(s)" (Savaprakasam, col. 12, lines 10-13). Since Sivaprakasam uses OFDM for all control channel signaling and merely observes the phase and amplitude of the received pilot tone

bursts for channel estimates, Sivaprakasam clearly fails to provide any teaching of a CPU that encodes a pilot tone with a frame of data.

Claim 17 is limited to "a CPU that provides coded and serialized information including a frame of data containing a header with address information, and a payload including a plurality of status indicators of the wireless microphone , said plurality of status indicators disposed within respective predetermined locations of the payload of the frame; tone burst creation circuitry that incorporates the provided coded and serialized information into a pilot tone burst; and a wireless transmitter that wirelessly transmits an audio signal from the microphone mixed with the pilot tone burst." Claim 19 is limited to the context where the "CPU provides coded and serialized information about the handheld wireless microphone or body pack including a data frame including a header with address information and a payload, the CPU modules a pilot tone with the coded information including the data frame where the coded information occupies respective predetermined locations within the frame and the modulator modulates the changed audio signal by mixing the changed audio signal with the pilot tone burst for wireless transmission through the output antenna." Neither Williams or Sivaprakasam provides any teaching or suggestion of a pilot tone burst encoded with status indicators or information about the handheld wireless microphone or body pack.

For any of the above reasons, the combination of Williams and Sivaprakasam do not teach or suggest each and every claim limitation. Since the combination does not teach or suggest each and every claim limitation, the rejections are improper and should be withdrawn.

Claim 6 stands rejected under 35 U.S.C. §103(a) as being obvious over Shiraishi in view of McGee et al. and U.S. Pat. Appl. No. US 2003/0190924 to Agashe. Applicants respectfully traverse these rejections.

It may be noted in this regard that claim 6 is dependent upon claim 1 and includes all of the limitations of claim 1. As such, claim 6 is limited to "detecting an audio signal . . . transmitting data from the transmitter to the receiver of said audio system . . . said data including the detected audio signal; transmitting a tone burst coded with a frame of data, including a header with address information, a payload and a trailer from the transmitter to the receiver and storing said frame of data therein, said payload of said frame of data containing two or more characteristics regarding said transmitter disposed within respective predetermined locations of the frame."

Moreover, Agashe (as with Shiraisi and McGee et al.) also fails to teach or suggest this claim limitation. As such, the combination of Shiraisi, McGee et al. and Agashe do not teach or suggest each and every claim limitation. Since the combination does not teach or suggest each and every claim limitation, the rejections are improper and should be withdrawn.

Claim 13 and 14 stand rejected under 35 U.S.C. §103(a) as being obvious over Shiraishi in view of McGee et al. and U.S. Pat. No. 6,288,641 to Casais. Applicants respectfully traverse these rejections.

It may be noted in this regard that claims 13 and 14 are dependent upon claim 1 and includes all of the limitations of claim 1. As such claims 13 and 14 are limited to "detecting an audio signal . . . transmitting data from the transmitter to the receiver of said audio system . . .

said data including the detected audio signal; transmitting a tone burst coded with a frame of data, including a header with address information, a payload and a trailer from the transmitter to the receiver and storing said frame of data therein, said payload of said frame of data containing two or more characteristics regarding said transmitter disposed within respective predetermined locations of the frame."

Moreover, Casais (as with Shiraisi and McGee et al.) also fails to teach or suggest this claim limitation. As such, the combination of Shiraisi, McGee et al. and Casais do not teach or suggest each and every claim limitation. Since the combination does not teach or suggest each and every claim limitation, the rejections are improper and should be withdrawn.

Claim 15 and 16 stand rejected under 35 U.S.C. §103(a) as being obvious over Shiraishi in view of McGee et al. and U.S. Pat. No. 6,337,913 to Chang. Applicants respectfully traverse these rejections.

It may be noted in this regard that claims 15 and 16 are dependent upon claim 1 and includes all of the limitations of claim 1. As such claims 15 and 16 is limited to "detecting an audio signal . . . transmitting data from the transmitter to the receiver of said audio system . . . said data including the detected audio signal; transmitting a tone burst coded with a frame of data, including a header with address information, a payload and a trailer from the transmitter to the receiver and storing said frame of data therein, said payload of said frame of data containing two or more characteristics regarding said transmitter disposed within respective predetermined locations of the frame."

Moreover, Chang (as with Shiraisi and McGee et al.) also fails to teach or suggest this claim limitation. As such, the combination of Shiraisi, McGee et al. and Chang do not teach or suggest each and every claim limitation. Since the combination does not teach or suggest each and every claim limitation, the rejections are improper and should be withdrawn.

Closing Remarks

For the foregoing reasons, applicant submits that the subject application is in condition for allowance and earnestly solicits an early Notice of Allowance. Should the Primary Examiner be of the opinion that a telephone conference would expedite prosecution of the subject application, the Primary Examiner is respectfully requested to call the undersigned at the below-listed number.

The Commissioner is hereby authorized to charge any additional fee which may be required for this application under 37 C.F.R. §§ 1.16-1.18, including but not limited to the issue fee, or credit any overpayment, to Deposit Account No. 23-0920. Should no proper amount be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 23-0920. A duplicate copy of this sheet(s) is enclosed.

Respectfully submitted,

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November 18, 2008

I hereby certify that this paper(s) is being transmitted via electronic mail to the Commissioner for Patents; P.O. Box 1450, Alexandria, VA 22313-0001 on November 18, 2008.

____
Lisa M. Harris

NEWTON'S TELECOM DICTIONARY

The Official Dictionary of Telecommunications & the Internet

• IP Telephony • LANs & Intranets • Call Centers & Computer Telephony • Fiber Optics, SONET and DWDM • Satellites • Voice, Data, Image & Video Networking • Wired and Wireless Telecom • VoIP • T-1, T-3, T-4, E-1, E-3 • ISDN & ADSL • Cable Modems • Cellular, PCS & GSM • Windows 95, 98, NT, NetWare, Apple, Sun & Unix Networking • Ecommerce

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erging local loop technology, provides T-1 service
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usands of channels using only 2, or even 1, physical wi
ss fibers). Microwave, satellite and infrared transmissi
tems support four-wire service without any wires at
also ISDN, T-1 and SONET.

ur-wire Repeater See Four-wire Circuit.

ur-wire Terminating Set An electrical device wh
es a four-wire circuit — one pair coming and one
ng — and turns it into the "normal" tip and ring circuit
d for a typical telephone, key system or PBX. See FOUR
RE CIRCUITS.

urier's Theorem In the early 1800s, the French math
atician Emile Fourier proved that a repeating, time-varyin
ction may be expressed as the sum of a (possibly infini
ies of sine and cosine waves. Digital data is a bit strea
ich can be sent as a sequence of square waves. Fourier's
eorem shows that to send a square wave (digital signal)
ies of sine waves (analog signals) are actually summed
ether. If 1,000 square waves are to be sent every second
example, the frequency components of the sine waves that
summed together are 1 kHz, 3 kHz, 5 kHz, 7 kHz, etc. The
int of this analysis is to show that high frequency signals
required to form a stable, recognizable square wave. As
the bit rate increases, the square wave frequency increas
and the width of the square waves decrease. Thus, narrow
square waves require sine waves of even higher frequen
s to form the digital signal. Note, then, that there is insuf
ient bandwidth in the 3 kHz voiceband to send squa
ves due to the absence of frequency components above
300 Hz. Even low frequency square waves cannot be sent
cause sine waves below 300 Hz are also absent. Thus, the
al loop, according to Fourier's Theorem, cannot be used
the transmission of digital signals! The last paragraph is,
fact, no longer totally correct, as the increasingly success
ISDN trials are proving.

urth Estate The press. In May 1789, Louis XVI, King of
ance, summoned to Versailles a full meeting of the "Estates
eneral." The First Estate consisted of 300 nobles; the
cond Estate, 300 clergy; the Third Estate, 600 commoners.
me years later, and well after the French Revolution,
lmund Burke, looking up at the press gallery of the British
use of Commons, said "Yonder sits the Fourth Estate, and
ey (i.e. the press) are more important than them all."

urth Utility The non-vendor specific communications
emise wiring system which you use for integrated informa
n distribution (voice, data, video, etc.) Leviton in Bothell,
ashington has trademarked the term Fourth Utility. They
ake a broad range of premise wiring products.

ox Message A standard sentence for testing teletype
iter circuits because it uses most of the letters on the key
ard. That sentence is "The quick brown fox jumped over
e lazy sleeping dog, 1234567890"

P 1. Feature Package. A software release for a telephone
stem. Originated with AT&T's Dimension PBX, now manu
cturer discontinued. 2. File Processor.

PDL Foreign Processor Data Link. A link from a Rockwell
CD to an external computer.

PG Feature Planning Guide.

PGA Field Programmable Gate Array. An FPGA is a spe-
cialized microprocessor that has no physical connections between its logic gates when it leaves the factory. But it has a huge number of potential connections, which can be firmed up in the field by a programmer with the right tools. FPGAs are a competitor to the cheaper ASICs — Application Specific Integrated Circuits. See VIRTUAL COMPUTING.

FPI Formal Public Identifier. A string expression that represents a public identifier for an object. FPI syntax is defined by ISO 9070.

FPLMTS Future Public Land Mobile Telecommunication Systems. A subject under discussion among the world's standards bodies. FPLMTS's objective is global terminal mobility.

FPM DRAM Fast Page Mode Dynamic Random Access Memory.

FPP Fiber Optic Patch Panel.

FPS 1. Fast Packet Switching.
2. Frames Per Second. A measure of the quality of a video signal. NTSC TV — the standard in North America — uses 30 fps. Film is 24 FPS. PAL/SECAM (European) is 25 FPS.

FPT Forced Perfect Terminator. A high-quality type of single-ended SCSI terminator, developed by IBM, with special circuitry that compensates not only for variations in terminator power but also for variations in bus impedance. See also Active Terminator and Passive Terminator.

FPU Floating Point Unit. A formal term for the math coprocessors (also called numeric data processors, or NDPs) found in many PCs. The Intel 80387 is an example of an FPU. FPUs perform certain calculations faster than CPUs because they specialize in floating-point math, whereas CPUs are geared for integer math. Today, most FPUs are integrated with the CPU rather than sold separately. See also CPU and DSP.

FQDN Fully Qualified Domain Name. An Internet term. The FQDN is the full site name of an Internet computer system, rather than just its hostname. For example, the system lisa at Widener University has a FQDN of lisa.cs.widener.edu.

FR See Flat Rate Service.

FR-1 A flammability rating established by Underwriters Laboratories for wires and cables that pass a specially designed vertical flame test. This designation has been replaced by VW-1.

Fractal A word coined in 1975 by Benoit B. Mandlebrot from the Latin fractus ("to break"). One fractal creator called fractals a shape with the property of "self-similarity."

Fractal Compression An asymmetrical compression technique that shrinks an image into extremely small resolution-independent files by storing it as a mathematical equation as opposed to storing it as pixels. The process starts with the identification of patterns within an image and results in collection of shapes that resemble each other but that have different sizes and locations within an image. Each shape-pattern is summarized and reproduced by a formula that starts with the largest shape and repeatedly displaces and shrinks it. These patterns are stored as equations and the image is reconstructed by iterating the mathematical model. Fractal compression can store as many as 60,000 images on one CD-ROM. One disadvantage of fractal compression is that it is time consuming, taking as long as four minutes to convert a 1.3 MB TIFF file to a 228 KB file. See FRACTALS.

Fractal Geometry The underlying mathematics behind fractal image compression, discovered by two Georgia Tech mathematicians, Michael Barneley and Alan Sloan.

Fractal Image Format FIF. A compression technique that uses on-board ASIC chips to look for patterns. Exact matches are rare and the process works on finding close matches using a function known as an affine map.

Fractals Along with raster and vector graphics, fractals are a way of defining graphics in a computer. Fractal graphics translate the natural curves of an object into mathematical formulas, from which the image can later be constructed. See FRACTAL COMPRESSION.

Fractional Services A British term. Bandwidth available from carriers in increments of 64Kbit/s such as Mercury's Switchband. See FRACTIONAL T-1 for the North American definition.

Fractional T-1 FT-1. Fractional T-1 refers to any data transmission rate between 56/64 Kbps (DSO rate) and 1.544 Mbps (T-1). Fractional T-1 is a four-wire (two copper pairs) digital circuit that's not as fast as a T-1. Fractional T-1 is popular because it's typically provided by a LEC (Local Exchange Carrier) or IXC (IntereXchange Carrier) at less cost than a full T-1, and in support of applications that don't require the level of bandwidth provided by a full T-1. While FT-1 is less costly than a full T-1, it is more costly on a channel-by-channel basis, as you would expect. Users love FT-1, but carriers hate it. FT-1 costs the carriers just as much to provision as does as full T-1, they just turn down some of the channels. FT-1 is typically used for LAN interconnection, videoconferencing, high-speed mainframe connection and computer imaging.

Fractional T-3 A telephone company service in which portions of a T-3 (44.7364 Mbps) transmission service are leased to provide a service similar to a T-1 (1.544 Mbps) or T-2 (3.152 Mbps) channel, but normally at a lower cost.

FRAD Frame Relay Access Device, also sometimes referred to as a Frame Relay Assembler/Disassembler. Analogous to a PAD (Packet Assembler/Disassembler) in the X.25 world, a FRAD is responsible for framing data with header and trailer information prior to presentation of the frame to a Frame Relay switch. On the receiving end of the communication, the FRAD serves to strip away the Frame Relay control information in order that the target device is presented with the data packaged in its original form. On the receiving end, the FRAD also generally is responsible for detecting errors in the payload data created during the process of network switching and transmission; error correction generally is accomplished through a process of retransmission. A FRAD may be a stand-alone device, although the function generally is embedded in a router.

Fragment The pieces of a frame left on an FDDI ring, caused by a station stripping a frame from the ring.

Fragmentation 1. In messaging it is the process in which an IP (Internet Protocol) datagram is broken into smaller pieces to fit the requirements of a given physical network. The reverse process is termed "reassembly."
2. ATM and SMDS networks routinely perform a process of Segmentation and Reassembly (SAR), segmenting the native PDU into 48-octet payloads which are carried in 53-octet cells. The process is reversed on the receiving end.
3. A condition that affects data stored on a disk. Adding and deleting records in a file, creates what is sometimes called the Swiss cheese effect. The operating system stores the data for an individual file in many different physical locations on the disk, leaving large holes between records. Fragmented files slow system performance because it takes time to locate all parts of a file.

Frame 1. A generic term specific to a number of data communications protocols. A frame of data is a logical unit of data, which commonly is a fragment of a much larger set of data, such as a file of text or image information. As the larger

file is prepared for transmission, it is fragmented into smaller data units. Each fragment of data is packaged into a frame format, which comprises a header, payload, and trailer. The header prepends (prepend means added to the front of) the payload and includes a beginning flag, or set of framing bits, which are used for purposes of both frame delineation (beginning of the frame) and synchronization of the receiving device with the speed of transmission across the transmission link. Also included in the header are control information (frame number), and address information (e.g., originating and terminating addresses). Following the header is the payload, which is the data unit (fragment) being transmitted. Appending the payload is the trailer, which comprises data bits used for error detection and correction, and a final set of framing bits, or ending flag, for purposes of frame delineation (ending of the frame). This frame format, in the broader generic sense, also is known as a data packet. Frame, therefore, is a term specific to certain bit-oriented data transmission protocols such as SDLC (Synchronous Data Link Control) and HDLC (High-level Data Link Control), with the latter being a generic derivative of SDLC. In the case of SDLC, a frame is very similar to a block, which would be employed in a character-oriented protocol such as IBM's BSC (Binary Synchronous Communications), also known as Bisync. See also BSC, HDLC, Packet, and SDLC.
2. In TV video, a frame is a single, complete picture in video or film recording. A video frame consists of two interlaced fields of either 525 lines (NTSC) or 625 lines (PAL/SECAM), running at 30 frames per second (NTSC) or 25 frames per second (PAL/SEACAM). 24 frames are sent in moving picture films and a variable number, typically between 8 and 30, sent in videoconferencing systems, depending on the transmission bandwidth available. Up to about 12 frames a second looks "jerky."
3. One complete cycle of events in time division multiplexing. The frame usually includes a sequence of time slots for the various sub channels as well as extra bits for control, calibration, etc. T-Carrier makes use of such a framing convention for packaging data. Channelized T-1, for instance, frames 24 time slots with a framing bit which precedes each set of sampled data.
4. A unit of data in a Frame Relay environment. The frame includes a payload of variable length, plus header and trailer information specific to the operation of a Frame Relay network service.
5. A metal framework, such as a relay rack, on which equipment is mounted. A distribution frame. A rectangular steel bar framework having "verticals and horizontals" which is used to place semipermanent wire cross connections to permanent equipment. Found in telephone rooms and central offices. See Distribution Frame.

Frame Alignment The extent to which the frame of the receiving equipment is correctly phased (synchronized) with respect to that of the received signal.

Frame Alignment Errors A frame alignment error occurs when a packet is received but not properly framed (that is, not a multiple of 8 bits).

Frame Alignment Sequence See Frame Alignment Signal

Frame Alignment Signal FAS. Frame Alignment Signal or Frame Alignment Sequence.
The distinctive signal inserted in every frame or once in n frames that always occupies the same relative position within the frame and is used to establish and maintain frame alignment, i.e. synchronization. See FRAME ALIGNMENT ERRORS.

Frame Buffer A section of memory used to store an image to be displayed on screen as well as parts of the image that lie outside the limits of the display. Some systems have frame buffers that will hold several frames, in which case they should be called "frames buffers." But they're not.

Frame Check Sequence Bits added to the end of a frame for error detection. Similar to a block check character (BCC). In bit-oriented protocols, a frame check sequence is a 16-bit field added to the end of a frame that contains transmission error-checking information. In a token ring LAN, the FCS is a 32-bit field which follows the data field in every token ring packet. This field contains a value which is calculated by the source computer. The receiving computer performs the same calculation. If the receiving computer's calculation does not match the result sent by the source computer, the packet is judged corrupt and discarded. An FCS calculation is made for each packet. This calculation is done by plugging the numbers (1's and 0's) from three fields in the packet (destination address, source address, and data) into a polynomial equation. The result is a 32-bit number (again 1's and 0's) that can be checked at the destination computer. This corruption detection method is accurate to one packet in 4 billion. See FRAME CHECK SEQUENCE ERRORS.

Frame Check Sequence Errors Errors that occur when a packet is involved in a collision or a corrupted by noise.

Frame Dropping The process of dropping video frames to accommodate the transmission speed available.

Frame Duration The sum of all the unit time intervals of a frame. The time from the start of one frame until the start of the next frame.

Frame DS1 The DS1 frame comprises 193 bit positions. The first bit is the frame overhead bit, while the remaining 192 bits are available for data (payload) and are divided into 24 blocks (channels) of 8 bits each.

Frame Error An invalid frame identified by the Frame Check Sum (FCS). See also FRAME ERRORS.

Frame Errors In the 12-bit, D4 frame word, an error is counted when the 12-bit frame word received does not conform to the standard 12-bit frame word pattern.

Frame Flag Sequence The unique bit pattern "01111110" used as the opening and closing delimiter for the link layer frames.

Frame Frequency A video term. The number of times per second a frame is scanned.

Frame Grab To capture a video frame and temporarily store it for later manipulation by a graphics input device.

Frame Grabber A PC board used to capture and digitize a single frame of NTSC video and store it on a hard disk. Also known as Frame Storer. See VIDEO CAPTURE BOARD.

Frame Ground FGD. Frame Ground is connected to the equipment chassis and thus provides a protective ground. Frame Ground is usually connected to an external ground such as the ground pin of an AC power plug.

Frame Header Address information required for transmission of a packet across a communications link.

Frame Multiplexing The process of handling traffic from multiple simultaneous inputs by sending the frames out one at a time in accordance with a specific set of rules. Instead of multiplexing traffic from a lower-speed connection into a higher speed connection based on a specific time duration for each low-speed channel, frame multiplexing using the length of a given frame as the measurement.

Frame Rate The number of images displayed per second in a video or animation file. The Frame Rate is highly significant is determining the quality of the image, with a high frame rate creating the illusion of full fluidity of motion. 30 frames per second (30 fps) is considered to be full-motion, broadcast quality. On the other end of the scale, 2fps is most annoying. At 30 fps, the brain processes the images, filling in the blanks due to the "Phi Phenomenon." See PHI PHENOMENON.

Frame Relay Frame relay, technically speaking, is an access standard defined by the ITU-T in the I.122 recommendation, "Framework for Providing Additional Packet Mode Bearer Services." Frame relay services, as delivered by the telecommunications carriers, employ a form of packet switching analogous to a streamlined version of X.25 networks. The packets are in the form of "frames," which are variable in length, with the payload being anywhere between 0 and 4,096 octets. The key advantage to this approach is that a frame relay network can accommodate data packets of various sizes associated with virtually any native data protocol. In other words, a X.25 packet of 128 bytes or 256 bytes can be switched and transported over the network just as can an Ethernet frame of 1,500 bytes. The native Protocol Data Unit (PDU) is encapsulated in a Frame Relay frame, which involves header and trailer information specific to the operation of the Frame Relay network.
Further, a Frame Relay network is completely protocol independent. Not only can any set of data be accepted, switched and transported across the network, but the specific control data associated with the payload is undisturbed in the process of encapsulation. Additionally, and unlike a X.25 network, a Frame Relay network assumes no responsibility for protocol conversion; rather, such conversions are the responsibility of the user. While this may seem like a step down from X.25, the data neither requires segmentation into fixed length packets nor does the network have to undertake processor-intensive and time-consuming protocol conversion. The yield is faster and less expensive switching.
A Frame Relay network also assumes no responsibility for errors created in the processes of transport and switching. Rather, the user also must accept full responsibility for the detection and correction of such errors. The user also must accept responsibility for the detection of lost packets (frames), as well for the recovery of them through retransmission. Again, this may seem like a step down from X.25 networks, which correct for errors at each network node, and which detect and recover from lost packets. Once again, however, the yield is faster and less expensive switching. In fact it is unlikely that frames will be damaged, as the switches and transmission facilities are fully digital and offer excellent erro performance.